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10/625,098	07/22/2003	Hiroki Akano	FUJA 20.519 (100794-00459)	8771
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KATTEN MUCHIN ROSENMAN LLP 575 MADISON AVENUE NEW YORK, NY 10022-2585			BANTA, TRAVIS R	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/625,098	AKANO, HIROKI	
<b>Examiner</b>	<b>Art Unit</b>		
Travis R. Banta	3714		

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 09 August 2007.

2a)  This action is **FINAL**.                            2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## **Disposition of Claims**

4)  Claim(s) 1-4, 10-13 and 35-42 is/are pending in the application.  
4a) Of the above claim(s) 5-9 and 14-34 is/are withdrawn from consideration.

5)  Claim(s) \_\_\_\_\_ is/are allowed.

6)  Claim(s) 1-4, 10-13 and 35-42 is/are rejected.

7)  Claim(s) \_\_\_\_\_ is/are objected to.

8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All    b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)  Notice of References Cited (PTO-892) 4)  Interview Summary (PTO-413)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948) Paper No(s)/Mail Date. \_\_\_\_.  
3)  Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.  
5)  Notice of Informal Patent Application  
6)  Other: \_\_\_\_.

**DETAILED ACTION**

***Response to Amendment***

This action is made pursuant to a request for continued examination filed 8/9/2007. Claims 1-4, 10-13, and 35-42 are pending.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 10-13, and 35-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Cubic Defense Applications MILES 2000 system in view of Campagnuolo (US 5,474,452).

Regarding claim 1, Cubic Defense Applications teaches a laser transmitting receiving system providing training soldiers with target practice. MILES 2000 teaches a laser transmitter and receiver. The MILES 2000 system is monitored by a computer disclosed at <http://www.cubic.com/cda1/pdf/MAARs%20Manual%20compiled.pdf> under Chapter 2 – System requirements, to contain memory to store geographical features information for an After Action Review. This geographical information is disclosed to be at least containing information about wooded or open geography ([http://www.cubic.com/cda1/Prod\\_&\\_Serv/Cmbt\\_Trng\\_Sys/Grnd\\_Cmbt\\_Trng/Compone](http://www.cubic.com/cda1/Prod_&_Serv/Cmbt_Trng_Sys/Grnd_Cmbt_Trng/Compone)

nts/Instru\_equip2.html). The system also uses GPS to track individual units and their orientation on the combat field. Maps which are a virtual representation of geographical information system are shown on computer screens in the Combat Training Center Instrumentation System, Rangeless Training System and the Combat Training Center After Action Review (see [http://www.cubic.com/cda1/Prod\\_&\\_Serv/Cmbt\\_Trng\\_Sys/Grnd\\_Cmbt\\_Trng/MILES\\_2000/Components\\_AARS/After\\_Action\\_Rev.html](http://www.cubic.com/cda1/Prod_&_Serv/Cmbt_Trng_Sys/Grnd_Cmbt_Trng/MILES_2000/Components_AARS/After_Action_Rev.html)). The Rangeless Traning System map shows specific dots of what can be assumed to be the location of a soldier or other combat unit. Information provided by the lasers relays information to the Combat Traning Center Instrumentation System to indicate a "kill" or other player event. The position of the "killed" player is relayed to the Instrumentation System. Real time tracking shows the killed player's position.

Cubic Defense Applications fails to specifically disclose a modulator for modulating a laser signal in the MILES 2000 system. In the same MILES 2000 system, Campagnuolo (US 5,474,452) teaches the lasers are encoded with information unique to each player and shot. It is inherent that a laser specially encoded with unique information as taught by Campagnuolo '452 would be modulated to install that information into the laser. The unique information encoded in the lasers is disclosed to contain information about the type of ammunition and firearm a transmitted laser originated from. Cubic Defense Applications teaches that each event (such as a shot, a kill, or a communications kill) is recorded by the transmitter and time tagged (see [http://www.cubic.com/cda1/Prod\\_&\\_Serv/Cmbt\\_Trng\\_Sys/Grnd\\_Cmbt\\_Trng/MILES\\_2000/Components\\_AARS/After\\_Action\\_Rev.html](http://www.cubic.com/cda1/Prod_&_Serv/Cmbt_Trng_Sys/Grnd_Cmbt_Trng/MILES_2000/Components_AARS/After_Action_Rev.html))

00/Components\_AARS/Indvdl\_Weapon\_Sys.html). Cubic Defense Applications also teaches the addition of GPS technology allows MILES 2000 to take position and location information for use in the After Action Reviews (see [http://www.cubic.com/cda1/Prod\\_&\\_Serv/Cmbt\\_Trng\\_Sys/Grnd\\_Cmbt\\_Trng/MILES\\_2000/index.html](http://www.cubic.com/cda1/Prod_&_Serv/Cmbt_Trng_Sys/Grnd_Cmbt_Trng/MILES_2000/index.html)). Detectors including judgment units are provided to extract information from a laser shot and estimate the amount a shot effect using the extracted information from the laser shot (see Campagnuolo column 1 lines 35-51). One of ordinary skill in the art would recognize that the unique laser system of the MILES 2000 system in combination with the GPS improvement implemented is capable of transmitting the position and location of each laser shot as it is already calculated by the system for the After Action Review. One of ordinary skill in the art would be motivated to encode the laser with position and time information of the shot so a soldier or squad would know which direction fire was coming from when hit so the squad or others could either take cover or mount a defense to simulate more realistic battlefield conditions. It would therefore be obvious to one of ordinary skill in the art to combine position and time information in the encoded laser information with the pre-existing MILES 2000 system to increase realism in the game.

Regarding claim 2, Cubic Defense Applications MILES 2000 teaches transmitting a modulated laser signal in response to a signal from the trigger of a weapon. This is shown in a picture on

[http://www.cubic.com/cda1/Prod\\_&\\_Serv/Cmbt\\_Trng\\_Sys/Grnd\\_Cmbt\\_Trng/MILES\\_2000/index.html](http://www.cubic.com/cda1/Prod_&_Serv/Cmbt_Trng_Sys/Grnd_Cmbt_Trng/MILES_2000/index.html)

00/Components\_AARS/Indvdl\_Weapon\_Sys.html. The solder is firing his weapon by actuating the trigger with his finger as is well known in the art of shooting.

Regarding claim 3, Cubic Defense Applications MILES 2000 fails to disclose encoding a laser signal with shooter position information. However, one of ordinary skill in the art recognizes that since the system calculates the position of each shot, it would be advantageous to render the calculation unnecessary by encoding each shot with the position information in addition to the information already encoded. It would therefore be obvious to one of ordinary skill in the art at the time of the invention to include position information in the output from a shooter of a MILES 2000 rifle.

Regarding claim 4, Cubic Defense Applications MILES 2000 discloses tracking the soldier in real time. Thus, it continuously updates the position information of each solder and corresponds to the most recent position information (see [http://www.cubic.com/cda1/Prod\\_&\\_Serv/Cmbt\\_Trng\\_Sys/Grnd\\_Cmbt\\_Trng/index.html](http://www.cubic.com/cda1/Prod_&_Serv/Cmbt_Trng_Sys/Grnd_Cmbt_Trng/index.html))

Regarding claim 10, Cubic Defense Applications MILES 2000 teaches a computer with sufficient memory to store geographical features information (see <http://www.cubic.com/cda1/pdf/MAARs%20Manual%20compiled.pdf> chapter 2, system requirements). MILES 2000 also contains a judgment unit for judging a shot effect using time and position information (see [http://www.cubic.com/cda1/Prod\\_&\\_Serv/Cmbt\\_Trng\\_Sys/Grnd\\_Cmbt\\_Trng/MILES\\_200/index.html](http://www.cubic.com/cda1/Prod_&_Serv/Cmbt_Trng_Sys/Grnd_Cmbt_Trng/MILES_200/index.html)). The geographical features information is "recorded" (see website immediately above paragraph 2 line 2) as it pertains to each individual supplied with GPS technology in the MILES 2000 system. This information is shown on a map in the

After Action Reviews. Cubic Defense Applications MILES 2000 fails to disclose that time and position information is extracted from a received laser signal. In the same MILES 2000 system Campagnuolo (US 5,474,452) teaches the lasers are encoded with information unique to each player and shot (see column 1 lines 35-51). One of ordinary skill in the art would recognize that since the time and position data is incorporated into the system already, it would be advantageous to eliminate superfluous elements and modulate coded time and position information already available into each laser shot. It would therefore be obvious to one of ordinary skill in the art at the time the invention was made to encode lasers with time and position information to be extracted from the received laser signal.

Regarding claim 11, Cubic Defense Applications MILES 2000 teaches a computer with sufficient memory to store geographical features information (see <http://www.cubic.com/cda1/pdf/MAARs%20Manual%20compiled.pdf> chapter 2, system requirements). MILES 2000 also contains a judgment unit for judging a shot effect using time and position information (see [http://www.cubic.com/cda1/Prod\\_&\\_Serv/Cmbt\\_Trng\\_Sys/Grnd\\_Cmbt\\_Trng/MILES\\_2000/index.html](http://www.cubic.com/cda1/Prod_&_Serv/Cmbt_Trng_Sys/Grnd_Cmbt_Trng/MILES_2000/index.html)). The judgment unit estimates the effect of a shot in accordance with information obtained from a received laser signal. Cubic Defense Applications MILES 2000 fails to disclose time difference and position information is extracted from the laser signal. In the same MILES 2000 system Campagnuolo (US 5,474,452) teaches the lasers are encoded with information unique to each player and shot (see column 1 lines 35-51). One of ordinary skill in the art would recognize that since the time difference

and position data are incorporated into the system already, it would be advantageous to eliminate superfluous elements and modulate coded time and position information already available into each laser shot. It would therefore be obvious to one of ordinary skill in the art at the time the invention was made to encode lasers with time difference and position information to be extracted from the received laser signal.

The geographical features information is "recorded" (see website immediately above paragraph 2 line 2) as it pertains to each individual supplied with GPS technology in the MILES 2000 system. This information is shown on a map in the After Action Reviews.

Regarding claim 12, Cubic Defense Applications MILES 2000 teaches a computer with sufficient memory to store geographical features information (see <http://www.cubic.com/cda1/pdf/MAARs%20Manual%20compiled.pdf> chapter 2, system requirements). A munitions type parameter recorder for recording munitions type parameters (see

[http://www.cubic.com/cda1/Prod\\_&\\_Serv/Cmbt\\_Trng\\_Sys/Grnd\\_Cmbt\\_Trng/MILES\\_2000/Components\\_AARS/Indvdl\\_Weapon\\_Sys.html](http://www.cubic.com/cda1/Prod_&_Serv/Cmbt_Trng_Sys/Grnd_Cmbt_Trng/MILES_2000/Components_AARS/Indvdl_Weapon_Sys.html)). A judgment unit is provided for judging shot effectiveness and the type of munitions. Munitions information is extracted from the laser signal to enable the receiver to detect the criticality of the hit. Cubic Defense Applications MILES 2000 fails to disclose time difference and position information is extracted from the laser signal. In the same MILES 2000 system Campagnuolo (US 5,474,452) teaches the lasers are encoded with information unique to each player and shot (see column 1 lines 35-51). One of ordinary skill in the art

would recognize that since the time difference and position data are incorporated into the system already, it would be advantageous to eliminate superfluous elements and modulate coded time and position information already available into each laser shot. It would therefore be obvious to one of ordinary skill in the art at the time the invention was made to encode lasers with time difference and position information to be extracted from the received laser signal.

The geographical features information is "recorded" (see website immediately above paragraph 2 line 2) as it pertains to each individual supplied with GPS technology in the MILES 2000 system. This information is shown on a map in the After Action Reviews.

Regarding claim 13, Cubic Defense Applications MILES 2000 discloses a controller comprising a computer with sufficient memory to store geographical features information (see <http://www.cubic.com/cda1/pdf/MAARs%20Manual%20compiled.pdf> chapter 2, system requirements). The computer responds to real time information being processed on the simulated battlefield. The computer will sense the modulator and hence the soldier's time and position of each shot from a weapon as well as the geographical feature information being provided by GPS and the system (wooded or open area etc.). Cubic Defense Applications MILES 2000 fails to disclose geographical feature, time and position information being transmitted to the laser transmitter. In the same MILES 2000 system Campagnuolo (US 5,474,452) teaches the lasers are encoded with information unique to each player and shot (see column 1 lines 35-51). One of ordinary skill in the art would recognize that since the geographic, time,

and position data are incorporated into the system already, it would be advantageous to eliminate superfluous elements and modulate coded time and position information already available into each laser shot. It would therefore be obvious to one of ordinary skill in the art at the time the invention was made to encode lasers with geographic, time, and position information to be transmitted in the laser signal.

Regarding claim 35, Cubic Defense Applications MILES 2000 discloses a laser transmitting/receiving system for target practice. The laser transmitter is installed on a shooting apparatus. The apparatus is manually articulated to trigger a signal for the weapon to transmit a laser signal in a straight line with respect to the axis of the barrel. The shooting side apparatus also comprises a position finder for generating position information. This information is tracked and recorded by a computer in real time to continuously update the information about the position finder (Please see the art cited in the rejection of claim 1 for evidence). The apparatus is able to shoot a laser encoded with information. Cubic Defense Applications MILES 2000 fails to disclose all of the information encoded in the laser shot. Cubic Defense Applications MILES 2000 does disclose transmitting shot weapon type information and shot munitions type information. In the same MILES 2000 system Campagnuolo (US 5,474,452) teaches the lasers are encoded with information unique to each player and shot (see column 1 lines 35-51). One of ordinary skill in the art would recognize that the unique laser system of the MILES 2000 system in combination with the GPS improvement implemented is capable of transmitting the position and location of each laser shot as it is already calculated by the system for the After Action Review. One of ordinary skill in the art would be

motivated to encode the laser with position and time information of the shot so a soldier or squad would know which direction fire was coming from when hit so the squad or others could either take cover or mount a defense to simulate more realistic battlefield conditions. It would therefore be obvious to one of ordinary skill in the art to combine position and time information in the encoded laser information with the pre-existing MILES 2000 system to increase realism in the game.

Regarding claim 36, Cubic Defense Applications MILES 2000 teaches a laser transmitting/receiving system. The system comprises a computer that generates the time information of a shot and marks the corresponding position information. The computer continuously tracks in real time the time information of the shooter monitored by GPS. The transmitter in the system transmits position information of the shooter, and the time information output from the shooter (see art cited as evidence in the rejection of claim 1). In the same MILES 2000 system Campagnuolo (US 5,474,452) teaches the lasers are encoded with information unique to each player and shot (see column 1 lines 35-51). One of ordinary skill in the art would recognize that since the time and position data are incorporated into the system already, it would be advantageous to eliminate superfluous elements and modulate coded time and position information already available into each laser shot. It would therefore be obvious to one of ordinary skill in the art at the time the invention was made to encode lasers with time and position information to be transmitted in the laser signal. The signal is created when a trigger signal is applied by the shooter to the weapon by pulling the trigger.

Regarding claim 37, Cubic Defense Applications MILES 2000 teaches a laser transmitting/receiving system. The laser receiver is put on a target. The receiver will judge the laser signal from the transmitter to determine the effect of the fired laser shot. The target soldier is equipped with GPS to generate position information of the target. A computer tracks the progress/position and shooting in real time of each soldier on the field. Each of various munitions is tracked for effectiveness in the battle and effects of the munitions are recorded in the computer device. Munitions parameters necessary for the calculations of a hit risk range for each type of munitions are provided in the computer to obtain an effectiveness of the shot and are measured and judged by the detectors worn by a target soldiers. This information is encoded in the laser fired by the shooting side apparatus and received by the target side apparatus. The effects of the shot are broadcast to the tracking computer. Necessary parameters include various parameters to ensure the realism of the shot such as caliber and weapon (satisfactory information to determine range). This information is used to judge the effectiveness of a shot on the target side (see

[http://www.cubic.com/cda1/Prod\\_&\\_Serv/Cmbt\\_Trng\\_Sys/Grnd\\_Cmbt\\_Trng/MILES\\_2000/Components\\_AARS/Indvdl\\_Weapon\\_Sys.html](http://www.cubic.com/cda1/Prod_&_Serv/Cmbt_Trng_Sys/Grnd_Cmbt_Trng/MILES_2000/Components_AARS/Indvdl_Weapon_Sys.html).) Effective ranges of damage are applied to "indirect fire" weapons such as mortars, tanks, chemical, biological, and nuclear weapons (see

[http://www.cubic.com/cda1/Prod\\_&\\_Serv/Cmbt\\_Trng\\_Sys/Grnd\\_Cmbt\\_Trng/MILES\\_2000/Components\\_AARS/Firing\\_Devices.html](http://www.cubic.com/cda1/Prod_&_Serv/Cmbt_Trng_Sys/Grnd_Cmbt_Trng/MILES_2000/Components_AARS/Firing_Devices.html)). These ranges are determined using a 3D reference system based on GPS and the topographic map shown on the computer

screen in the Combat Training Center Instrumentation system (see (18)

[http://www.cubic.com/cda1/Prod\\_&\\_Serv/Cmbt\\_Trng\\_Sys/Grnd\\_Cmbt\\_Trng/MILES\\_2000/Components\\_AARS/After\\_Action\\_Rev.html](http://www.cubic.com/cda1/Prod_&_Serv/Cmbt_Trng_Sys/Grnd_Cmbt_Trng/MILES_2000/Components_AARS/After_Action_Rev.html)).

Cubic Defense Applications MILES 2000 fails to disclose calculating velocity of a shot. Cubic Defense Applications MILES 2000 teaches realism encoded into each laser signal incorporating the characteristics of an individual caliber and weapon. Military cartridges, barrels, and firearm are all designed for consistent results. That is to say, each cartridge, barrel, and firearm are designed to be the same or at least within acceptable ranges of tolerance. Given the information of caliber and weapon and the standardized nature of the weapons system, it is possible to calculate the velocity of each bullet. One of ordinary skill in the art would recognize that the velocity of each bullet is useful in tank, mortar, and artillery gunnery because of the delayed effect of fire due to the unique firing characteristics and distances of each armament. That is to say, a simulated laser artillery shot would hit an area almost instantaneously whereas a realistic artillery shot would take several seconds to hit an area. It would be obvious to one of ordinary skill in the art at the time of the invention to calculate the velocity of each shot to improve the realism of the armaments by ensuring a fired shot struck a position when a real shot would have.

Regarding claim 38, Cubic Defense Applications MILES 2000discloses a laser transmitting and receiving system. A computer tracks each soldier target or shooting side. Real time data is produced to track the time and position of each soldier. These movements are recorded to be reviewed in the After Action Reviews. Cubic Defense

Applications MILES 2000 fails to specifically disclose a hit risk range calculated and recorded for each predetermined elapsed time from a shot and judged for effect. Cubic Defense Applications MILES 2000 teaches a hit simulator that is used to simulate indirect fire (a hit risk range). One of ordinary skill in the art would recognize that simulating a hit risk range and judging the effect on each predetermined shot would aid in realism training for fighting units. It would therefore be obvious to one of ordinary skill in the art to incorporate a hit risk range calculated and recorded for each shot and to judge that shot for effect to simulate indirect fire.

Regarding claim 39, Cubic Defense Applications teaches a laser transmitting/receiving system. A target side soldier is outfitted with detectors incorporating GPS technology (see [http://www.cubic.com/cda1/Prod\\_&\\_Serv/Cmbt\\_Trng\\_Sys/Grnd\\_Cmbt\\_Trng/MILES\\_2000/index.html](http://www.cubic.com/cda1/Prod_&_Serv/Cmbt_Trng_Sys/Grnd_Cmbt_Trng/MILES_2000/index.html)). The transmitter (see [http://www.cubic.com/cda1/Prod\\_&\\_Serv/Cmbt\\_Trng\\_Sys/Grnd\\_Cmbt\\_Trng/MILES\\_2000/Components\\_AARS/Indvdl\\_Weapon\\_Sys.html](http://www.cubic.com/cda1/Prod_&_Serv/Cmbt_Trng_Sys/Grnd_Cmbt_Trng/MILES_2000/Components_AARS/Indvdl_Weapon_Sys.html)) calculates and records shots and time tags other events. The detector is in communication with a computer which identifies when and where a player is shot using GPS and the time/event logs provided by the transmitter. The system is also capable of showing what type of terrain a soldier is in be it wooded or open etc (see [http://www.cubic.com/cda1/Prod\\_&\\_Serv/Cmbt\\_Trng\\_Sys/Grnd\\_Cmbt\\_Trng/Components/Instru\\_equip2.html](http://www.cubic.com/cda1/Prod_&_Serv/Cmbt_Trng_Sys/Grnd_Cmbt_Trng/Components/Instru_equip2.html)). This is regarded to be a terrain recorder. The terrain is showed on a topographical map which is deemed to be a 3D reference system to show terrain

based safe regions. The system calculates and records shot headings and positions from targets and based on the target and the shot fired. The shot is then mapped in real time to the GPS 3D topographical map to determine the shot and position of the target to judge the effectiveness of the shot or "probability of kill".

Regarding claim 40, Cubic Defense Applications MILES 2000 teaches an apparatus for target side receiving of a laser signal from a laser transmitter. The receiver apparatus estimates the effectiveness of the shot. A target soldier is equipped with GPS position information and is tracked in real time (see [http://www.cubic.com/cda1/Prod\\_&\\_Serv/Cmbt\\_Trng\\_Sys/Grnd\\_Cmbt\\_Trng/Components/Instru\\_equip2.html](http://www.cubic.com/cda1/Prod_&_Serv/Cmbt_Trng_Sys/Grnd_Cmbt_Trng/Components/Instru_equip2.html)). Movements and battle events are recorded on a computer. Munitions parameters are recorded for calculation of an "indirect hit" or area of effect weapons (tanks, mortar, artillery, chemical, nuclear, biological) and uses the position information collected to determine if a target unit is "damaged" when it is hit by a laser signal. The type of weapon and munitions parameters are encoded in the laser signal. The range of the projectile or area of effect is tracked in order to determine different degrees of damage. The effective time or range is measured to calculate a hit (see [http://www.cubic.com/cda1/Prod\\_&\\_Serv/Cmbt\\_Trng\\_Sys/Grnd\\_Cmbt\\_Trng/MILES\\_2000/Components\\_AARS/Indvdl\\_Weapon\\_Sys.html](http://www.cubic.com/cda1/Prod_&_Serv/Cmbt_Trng_Sys/Grnd_Cmbt_Trng/MILES_2000/Components_AARS/Indvdl_Weapon_Sys.html)). This information is recorded on the real time computer and shows where the event happened on a 3D reference topographical map equipped with GPS coordinates. The computer can use the 3D reference points from the GPS coordinate system to determine whether a hit should be registered and the effectiveness of the hit (see

[http://www.cubic.com/cda1/Prod\\_&\\_Serv/Cmbt\\_Trng\\_Sys/Grnd\\_Cmbt\\_Trng/MILES\\_2000/Components\\_AARS/After\\_Action\\_Rev.html](http://www.cubic.com/cda1/Prod_&_Serv/Cmbt_Trng_Sys/Grnd_Cmbt_Trng/MILES_2000/Components_AARS/After_Action_Rev.html)). For example, if a chemical attack is made, soldiers upwind from the gas would not be affected.

Cubic Defense Applications MILES 2000 fails to disclose calculating velocity of a shot. Cubic Defense Applications MILES 2000 teaches realism encoded into each laser signal incorporating the characteristics of an individual caliber and weapon. Military cartridges, barrels, and firearm are all designed for consistent results. That is to say, each cartridge, barrel, and firearm are designed to be the same or at least within acceptable ranges of tolerance. Given the information of caliber and weapon and the standardized nature of the weapons system, it is possible to calculate the velocity of each bullet. One of ordinary skill in the art would recognize that the velocity of each bullet is useful in tank, mortar, and artillery gunnery because of the delayed effect of fire due to the unique firing characteristics and distances of each armament. That is to say, a simulated laser artillery shot would hit an area almost instantaneously whereas a realistic artillery shot would take several seconds to hit an area. It would be obvious to one of ordinary skill in the art at the time of the invention to calculate the velocity of each shot to improve the realism of the armaments by ensuring a fired shot struck a position when a real shot would have.

Regarding claim 41, Cubic Defense Applications MILES 2000 discloses a target side position finder in the form of GPS coordinates monitored by a computer in real time. This computer records time information from the real time events including movements and other events. When the target is hit, a hit risk range is calculated and

recorded to determine if the unit or soldier is irreparably hit. Elapsed time between shots allows for simulated delayed fire weapons (tanks, mortars, artillery, chemical, biological or nuclear weapons) to accurately determine the status of whether a soldier/unit is hit and the severity thereof.

Regarding claim 42, Cubic Defense Applications MILES 2000 discloses a damage simulator including smoke generators of different amounts of smoke for simulating damage when damage is determined by a judging unit to impact a vehicle or other unit. The simulation is designed to accurately represent the criticality of a hit. On the assumption that in reality increased damage would lead to increased smoke, the simulator would emit more smoke when the vehicle was simulated to be destroyed than if the vehicle was non-critically struck (see

[http://www.cubic.com/cda1/Prod\\_&\\_Serv/Cmbt\\_Trng\\_Sys/Grnd\\_Cmbt\\_Trng/MILES\\_2000/Components\\_AARS/Firing\\_Devices.html](http://www.cubic.com/cda1/Prod_&_Serv/Cmbt_Trng_Sys/Grnd_Cmbt_Trng/MILES_2000/Components_AARS/Firing_Devices.html)).

### ***Response to Arguments***

The Applicant has argued that neither MILES 2000 does not disclose a "laser receiver that extracts position information from a received laser and judges shot effect using stored geographical features information. Above, the Examiner showed that Campagnuolo at column 1 lines 35-51 discloses a laser receiver that extracts information from a shot. MILES 2000 further discloses that each shot is encoded with position information by virtue of the upgraded MILES 2000 whose whole intent is to implement GPS in the previously known MILES system. This shot effect is judged (hit,

miss, kill, catastrophic kill, etc.). The event is time tagged and GPS coordinates (geographical features information) are stored to indicate the event on a map for use in the After Action Reviews. Thus, the limitation of a laser receiver, to extract position information from a received laser and judge a shot effect using graphical features information is met.

The Applicant has also argued the date for the MILES 2000 system is after the date of the Applicant's invention because the copyright date of the cited evidence is after the Applicant's effective filing date. While this is true, the Examiner would note that the claims are rejected over the MILES 2000 system, and not the cited evidence. The evidence was merely provided to help the Applicant understand the MILES 2000 system.

It is clear that the MILES 2000 system was known prior to the Applicant's invention. Indeed, Capagnuolo's disclosure which is known as prior art refers to MILES 2000 as already known. Also, the information cited in the Advisory action states that the MILES 2000 system was known prior to the Applicant's filing date. Further, the requirements which at a minimum suggest much of the Applicant's claimed subject matter, were provided for minimum guidelines companies wishing to bid on a contract should implement in the system as far back as the early nineties.

However, the Examiner has found archived information concerning the MILES 2000 system by Cubic Defense Systems with a date prior to the Applicant's filing date. At [http://web.archive.org/web/\\*http://www.cubic.com](http://web.archive.org/web/*http://www.cubic.com), using the date of November 21, 2000, the Examiner has found all of the previously cited information (though less usable

so the previous citations have been maintained in the action for convenience). When the link to November 21, 2000 is clicked on, the following web site appears:

<http://web.archive.org/web/20001121032300/http://www.cubic.com/>. This contains a link to Cubic Defense Systems. When Cubic Defense Systems is clicked on, the following website appears:

<http://web.archive.org/web/20001005003339/www.cubic.com/cds/index.html>. On that page, there is a link to MILES 2000. When that link is clicked, the information cited in this action is available with a copyright date of 1999,2000 – prior to the Applicant's effective filing date.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Travis R. Banta whose telephone number is (571) 272-1615. The examiner can normally be reached on Monday-Friday 9-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bob Pezzuto can be reached on (571) 272-6996. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TB

*Ronald Laneau*  
RONALD LANEAU  
PRIMARY EXAMINER

10/11/07